

When One Isn't Enough:
Product-Level and Organization-Level Sustainability in New Ventures

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Abstract:

Sustainability practices and claims made by new ventures can influence inferences made by external stakeholders about unobservable organizational attributes. We argue that perceived consistency between product-level and organization-level sustainability will influence external stakeholders' perceptions of a new venture, such that new ventures engaging in *both* product-level and organization-level sustainability will be viewed as more authentic in their commitment to sustainability, and in turn be more successful, than a new venture that engages in only one type of sustainability without the other. To test our theory, we use mixed methods. We first leverage machine learning methodologies to categorize new ventures on the rewards-based crowdfunding platform, Kickstarter, as sustainable at the product and organization levels. Examining the relationship between each type and combination of perceived product- and organization-level sustainability and venture success, using coarsened exact matching to control for potential endogeneity concerns, we demonstrate that new ventures perceived as having both product- and organization-level sustainability are more likely to succeed than those perceived as sustainable at only the product- or organization-level. Next, we utilize an experiment to examine the mechanism driving this effect. We provide evidence that perceptions about the organization's authenticity help to explain why one type of sustainability without the other may not be enough.

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1. Introduction

There has been strong scholarly interest in examining the strategic implications of corporate sustainability practices and claims (e.g., Carnahan et al., 2017; Dowell et al., 2000; Flammer, 2015), wherein corporate sustainability refers to the inclusion of social and environmental concerns in business operations and interactions with stakeholders (Dyllick and Hockerts, 2002). Yet empirical evidence in support of a positive relationship between sustainability and firm performance remains mixed (Margolis and Walsh, 2001; Orlitzky et al., 2003). To better understand whether and how corporate sustainability can affect the bottom line, it is critical to understand how a firm's stakeholders respond to its sustainability efforts (Glavas, 2016; Gond, El Akremi, Swaen, & Babu, 2017; Shea & Hawn, 2019). One way that sustainability-related practices and claims can influence *external* firm stakeholders is by providing informational cues about attributes and characteristics of the firm that are otherwise difficult for these stakeholders to observe. When drawing inferences from a sustainability-related characteristic or claim, external stakeholders are influenced not only by the characteristic or claim itself, but also by their perceptions about other firm characteristics in concert (Lee and Huang, 2019; Abraham and Burbano, 2021). Indeed, they rely on various informational cues to make inferences about whether sustainability-related practices and claims are symbolic or substantive, for example (Cuypers, Koh and Wang, 2015).

Extant work has highlighted the importance of perceived consistency between an organization's sustainability-related claims and its non-sustainability-related characteristics such as leadership gender (Lee and Huang, 2019; Abraham and Burbano, 2021; Bode, Rogan, and Singh 2019). Yet there has been little consideration of the importance of perceived consistency *within* a firm's sustainability characteristics and claims in influencing how external stakeholders perceive

these claims. In particular, there has been little consideration of how consistency within a firm's sustainability characteristics and claims is likely to affect perceptions of a firm's authenticity in making these claims and, resultingly, how sustainability claims and characteristics influence an organization's success.

Authenticity refers to a state of congruence or fit between an organization's representation of itself and its true values (Bucher, Fieseler, Fleck and Lutz, 2018; Peterson, 2005; Beverland, 2005; Napoli, Dickinson, Beverland and Farrelly, 2014). Because an organization's sustainability-oriented motives and true values are unobservable (Cuypers et al., 2015), external stakeholders infer from the information available to them whether an organization's representation of its commitment to sustainability is congruent with its true values not; that is, whether its sustainability-oriented practices and claims are authentic (Mazutis and Slawinski, 2015).

We consider two ways that organizations can incorporate sustainability into their business: 1) by implementing actions and making claims about sustainability at the product level and 2) by implementing actions and making claims about commitment to sustainability at the organization level. Given consumer trends indicating that (a subset of) consumers increasingly values and is willing to pay more for sustainable products (Casadesus-Masanell 2009; Wu et al., 2020; Du et al., 2011; Albuquerque et al., 2019), an organization perceived to be touting sustainable products but not perceived to be engaging in sustainable practices or claims at the organization level could be perceived by external stakeholders to be instrumental and inauthentic in its claimed commitment to sustainability (Olsen, Slotegraaf and Chandukala, 2014; Janssen and Langnen 2017). Likewise, given that organization-level sustainability practices such as charitable giving have been shown to benefit firms in the form of human capital (Burbano 2016, 2019; Tonin and Vlassopolous, 2015) and public reputation (Fombrun and Shanley, 1990), a firm perceived only to

be engaging in sustainable practices at the organization level could be perceived as instrumental and inauthentic in its commitment to and claims about sustainable products.

Behavior and communication that is consistent is more likely to be perceived by others as authentic than that which is inconsistent (Moulard, Garrity, and Rice 2015). Thus, perceived consistency across sustainability-oriented practices and claims at *both* the organization and product levels should increase perceptions of authenticity and reduce potential perceptions of instrumentality or hypocrisy. Organizations perceived by external stakeholders to engage in sustainable practices or make sustainable claims at both the product and organization levels should therefore be perceived to be more authentic in their commitment to sustainability than those engaging in sustainable practices or making sustainable claims at only one level.

Within organizations perceived to be sustainable at only one level, it is plausible that product-level sustainability alone (which is likely to be perceived as integral to the business of the organization) might be perceived as more authentic than organization-level sustainability alone (which is likely to be perceived as non-integral to the business of the organization), given qualitative interviews which have suggested that social responsibility programs may be viewed as more authentic when they are perceived to be integral to the business of the organization and not “tacked on” (McShane and Cunningham, 2012).

Firms are more likely to benefit when internal stakeholders perceive a firm’s social responsibility efforts to be authentic (Donia et al., 2017), and less likely to benefit when sustainability efforts or communications are perceived to be inauthentic, insincere or instrumental (Gershoff and Frels, 2015; Olsen, Slotegraaf and Chandukala, 2014; Fosfuri, Giarratana, and Roca, 2014; Cassar and Meier, 2017). Thus, we predict that organizations perceived as sustainable both at the organization-level and at the product-level will be more successful than those perceived as

being sustainable at the organization level only or, to a lesser extent, the product level only. We furthermore predict that stakeholders' perceptions of the authenticity of the organization will help to explain these effects.

We focus our paper on the context of new ventures and, specifically, crowdfunding new ventures. Although the prior line of argument should generally apply to both new and established firms, perceptions of authenticity behind sustainability claims are likely to be particularly salient for external stakeholders making inferences about new ventures. First, as there is relatively little information about new ventures available to external stakeholders (Geyskens et al. 1998; Stinchcomb 1965), the importance of a given informational cue is likely to be greater in the context of new ventures as compared to that of established firms. Second, external stakeholders are often strongly influenced by perceptions of the creator(s) or entrepreneurial founder(s) in these contexts (Mollick, 2014). This makes perceptions of authenticity especially important for new ventures (Schifeling and Demetry, 2021), including those in crowdfunding contexts (Radoynovska and King, 2019). Furthermore, given that scholarly research examining the strategic implications of sustainability claims has mainly focused on large, established firms, there is a need to better understand the strategic implications of sustainability claims and practices in smaller entrepreneurial organizations (Calic and Mosakowski, 2016), which make up the vast majority of the total number of businesses in the US.¹ We discuss in our conclusion whether and how our results might generalize to less nascent firms.

We use mixed methods to test our theory. First, we use an empirical setting which enables us to leverage comparable information on new ventures' characteristics: the rewards-based crowdfunding platform, Kickstarter. We use machine learning methodologies (using gradient

¹ US Small Business Administration. "2018 Small Business Profile." Available here: <https://www.sba.gov/sites/default/files/advocacy/2018-Small-Business-Profiles-US.pdf>

boosting machine classifiers) to categorize a large sample of projects as sustainable at the product level (or not) and at the organization level (or not). We then examine the relationship between product-level sustainability, organization-level sustainability, dual sustainability (both levels), and no sustainability (neither level) and venture success in reaching the funding goal, using coarsened exact matching to control for potential endogeneity concerns. We find evidence that one dimension of sustainability is not enough; new ventures must have *both* product- and organization-level sustainability to benefit. Furthermore, we find that the success of new ventures perceived to be sustainable at the product level only is statistically equivalent to that of new ventures perceived to be sustainable at the organization level only (as well as to that of new ventures perceived to be non-sustainable).

Next, we implemented a vignette experiment on Amazon Mechanical Turk to test the mechanism behind why external stakeholders might respond differently to dual sustainability as compared to either organization-only or product-only sustainability. After reading a description which varied in accordance with a 2x2 design (sustainable product: yes/no, sustainable organization: yes/no), participants were asked how much funding they would allocate to the project, as well as their perceptions of the project. We found that participants (self-reported that they would) allocate a greater funding amount to the dual-level sustainable venture than the product-only and organization-only sustainable venture, and that perceptions of authenticity positively mediated this effect.

While new ventures are increasingly making sustainability-oriented claims and investments (Olsen, Slotegraaf and Chandukala, 2014, McMullen and Warnick, 2016), scholarly research has underexplored whether, how, and under what circumstances new ventures stand to benefit from such practices and claims (Calic and Mosakowski, 2016). We thus contribute to an

understanding of the strategic implications of sustainability claims in new ventures, on which there has been relatively little scholarly focus to date. We furthermore contribute to scholarship on the strategic implications of sustainability in organizations more broadly by shedding light on the importance of consistency across different types of sustainability claims and practices in determining their benefits. Lastly, we contribute to the literature examining the role that perceived authenticity plays in firms' success (Frake, 2016, Hahl 2016, Lehman et al. 2019) by highlighting the importance of perceptions of authenticity within sustainability claims in predicting whether sustainability claims benefit new ventures.

2. External Stakeholders' Response to Sustainability Efforts and Claims

To understand whether, and through what mechanisms, corporate sustainability affects the bottom line, scholars have identified the importance of elucidating how different stakeholders respond to the firm's various sustainability efforts and claims (Glavas, 2016; Gond, El Akremi, Swaen, & Babu, 2017; Shea & Hawn, 2019). One of the mechanisms through which sustainability has been shown to affect *external* firm stakeholders in particular is via the potential signaling value of sustainability-related practices and claims. External stakeholders often make inferences from firms' sustainability-related practices and claims about organizational attributes that are difficult for external stakeholders to observe directly. For example, when a firm behaves pro-socially toward the broader community and/or environment, this signals to stakeholders that the company cares about and exhibits concern for its stakeholders (Godfrey et al. 2009). This can result in prospective workers rating firms with sustainable activities as more desirable potential employers (Turban and Greening, 1997), and being willing to accept lower wages to work at socially

responsible firms because they interpret from the employer's sustainable activities that the employer is fair and likely to treat them well (Burbano, 2016).

Beyond assessing, and making inferences from, any single sustainability-related characteristic or claim, external stakeholders' perceptions about a given sustainability-related characteristic or claim will also be informed by the external stakeholder's perceptions about *other* firm characteristics. In particular, there is increasing evidence that consistency or congruence across different firm characteristics and claims is generally viewed more favorably by external stakeholders than inconsistency and incongruence across characteristics and claims. There is recent evidence that external stakeholders such as investors (Huang and Lee, 2019) and job seekers (Abraham and Burbano, 2021) respond favorably to perceived gender-congruence between social or sustainability claims and leadership gender, for example, such that these external stakeholders exhibit a preference for gender-congruent as opposed to gender-incongruent organizational characteristics.

In addition to the importance of perceived consistency between sustainability characteristics or claims and other organizational characteristics and claims, perceived consistency and congruence *within* a firm's different types of sustainability characteristics and claims should also influence external stakeholders' perceptions of, and in turn behavior towards, a firm. Consistency and congruence is generally associated with greater credibility and legitimacy, such that organizations that provide consistent signals are seen as more credible in their claims (Herbig and Millewicz, 1995) and are more likely to gain competitive advantage (Groening, Mittal and Zhang, 2016).

2.1. Organization-Level and Product-Level Sustainability: Why One is Not Enough

Perceived consistency and congruence across behaviors and claims is furthermore linked to increased perceptions of authenticity (Moulard et al., 2015), where authenticity refers to perceived congruence or fit between an organization's representation of itself and its true values or essence (Bucher, Fieseler, Fleck and Lutz, 2018; Peterson, 2005). An organization's true motives and values behind its sustainability-oriented practices and claims are unobservable (Cuypers et al., 2015), such that stakeholders will make inferences about an organization's authenticity in its commitment to sustainability based on perceptions of consistency across sustainability-oriented practices and claims. Thus, consistency within a company's sustainability-related characteristics and claims will increase external stakeholders' perceptions that an organization's sustainability efforts and claims are authentic. Additionally, qualitative interviews have indicated that internal stakeholders' perceptions of authenticity in sustainability initiatives are influenced by the extent to which these programs are perceived to be integral to the business of the organization as opposed to "tacked on" (McShane and Cunningham, 2012).

To understand how consistency between sustainability claims and characteristics is likely to influence stakeholders' perceptions of organizational authenticity and subsequent success, we consider two main ways that new ventures can incorporate sustainability into their business: 1) by implementing actions and making claims about sustainability at the product level and 2) by implementing actions and making claims about commitment to sustainability at the organization level. Though these two dimensions of sustainability have at times been used interchangeably in extant literature, particularly in the examination of the strategic implications for large firms, they are two distinct ways that new ventures can demonstrate and/or claim to have sustainable attributes. The perceived alignment between sustainability characteristics and claims at the product and organization levels also has important implications for the degree to which sustainability-

related practices and claims are likely to be perceived to be integral to the business of the organization versus “tacked on.” Furthermore, given that new ventures tend to market only one product or service at their time of market entry, the salience of product characteristics and their weight in informing an external stakeholder’s inferences about a new venture is significant.

We define *product-level sustainability* as sustainability characteristics that are primarily attributed to the product or service produced by an organization. *Organization- (or producer-) level sustainability* refers to sustainability characteristics that are primarily attributed to the firm that produces a good or service. In both cases, we refer to “do good” (active) characteristics as opposed to “do no harm” (passive) sustainability characteristics.² Figure 1 plots these two dimensions of sustainability, and in what follows we describe well-known, large firm examples of companies that would fall into each of these quadrants. Though our empirical focus in this paper is on new ventures, these well-known examples are useful to help illustrate the distinctions.

INSERT FIGURE 1 ABOUT HERE

Quadrant D represents firms that are low in both dimensions, possessing neither type of sustainability. An example is the agricultural firm Monsanto, which has been criticized both for its products’ non-sustainable characteristics (its products include pesticides and crops that pose environmental risk) and its organizational non-sustainable characteristics (for example, failing to report emissions)³. Quadrant A represents organizations that are perceived to possess sustainable products or services, but not organization-level sustainability practices. An example of this type is Toyota, whose Prius model and other hybrid cars have a reputation as environmentally responsible vehicles. While this product line is an increasing focus for the company⁴, the organization itself is

² Crilly et. al. (2015) and McWilliams and Siegel (2001) refer to the distinctions between what we refer to as passive, or “do no harm,” versus active, or “do good,” social responsibility.

³ <https://www.forbes.com/sites/nathanielparishflannery/2011/09/03/monsantos-pesticide-problems-raise-awareness-for-corporate-environmental-responsibility>

⁴ <https://www.caranddriver.com/news/a28262444/toyota-rav4-hybrid-prius-sales/>

not synonymous with sustainability, given that it has been accused of covering up safety issues⁵. In Quadrant C are firms that possess organizational-level sustainability practices while being low in perceived product or service sustainability. An example of this type of firm is Starbucks, which is well known for its organizational-level sustainability practices such as offering generous employee benefits including stock options and college tuition programs⁶, but whose food and beverage products are not perceived to be particularly socially responsible (they have been criticized for their non-recyclable cups, for example)⁷. Finally, Quadrant B contains organizations high in both types of sustainability: an example is the consumer products firm Tom's of Maine, which emphasizes its focus on sustainability both at the product level (its products are characterized by sustainable attributes such as being free from additives or animal testing) and at the organizational level (donating 10 percent of sales to non-profit causes – typical corporate giving averages less than one percent of sales, for comparison⁸ – and encouraging employees to use paid time to volunteer)⁹.

A segment of consumers has been shown to value and be willing to pay more for sustainable products (Casadesus-Masanell 2009). As a result, sustainable products are often viewed as a means to increase brand image amongst consumers (Olsen, Slotegraaf and Chandukala, 2014; Wu et al., 2020), as responding to the preferences of a specific consumer segment (Janssen and Langnen 2017; Servaes and Tamayo, 2013; Du et al., 2011), and as a way to give status benefits to consumers (Elliott, 2013), thus increasing product differentiation (Albuquerque et al., 2019). Likewise, organization-level sustainability and claims can yield benefits for organizations through

⁵ <https://www.abc.net.au/news/2014-03-20/toyota-pays-1-3-billion-for-defect-cover-up-statements/5332894>

⁶ <https://www.nytimes.com/2017/11/15/business/dealbook/howard-schultz-starbucks-corporate-responsibility.html>

⁷ <https://www.cnn.com/interactive/2019/02/business/starbucks-cup-problem/index.html>

⁸ According to Corporate Executives for Corporate Purpose (CECP), the large firms they surveyed donated 0.13% of sales in 2017.

⁹ <https://www.tomsomaine.com/our-promise/our-mission>

other sets of stakeholders such as employees (Burbano 2016, 2019; Tonin and Vlassopolous, 2015), and organization-level sustainable practices such as charitable giving have been linked to a positive corporate reputation in the eye of the public (Fombrun and Shanley, 1990). Because there are potential strategic benefits of selling sustainable products as well as engaging in sustainable practices or claims at the organization level, it is difficult for new ventures to maintain a perception of authenticity and sincerity in such claims (Wagner et al, 2009).

New ventures that engage in both product- and organization-level sustainability are likely to be perceived as more consistent in their sustainability-related claims and characteristics. This, in turn, increases the perception that the organization's sustainability-related actions and claims are authentic and sincere, as opposed to instrumental. Furthermore, new ventures that engage in both levels of sustainability are less likely to be perceived as "tacking on" sustainability practices and more likely to be perceived as incorporating sustainability in a manner that is integral to their business. As was previously discussed, perceptions that social responsibility initiatives are integral to the business of the organization and not "tacked on" have been shown in qualitative studies to increase individuals' perceptions of organizational authenticity in sustainability claims and practices (McShane and Cunningham, 2012), suggesting further that dual sustainability is likely to be perceived as more authentic than either organization-only or product-only sustainability alone. Additionally, within organizations perceived to be sustainable at only one level, it is likely that product-level sustainability alone will be perceived as more integral to the business of the organization and thus, more authentic, than organization-level sustainability alone.

Perceptions of authenticity have been shown to have important implications for how both internal and external stakeholders respond to organizations. Consumers assign higher ratings to restaurants regarded to be more authentic, for example (Kovacs, Carroll and Lehman, 2013).

Perceptions of an organization's sincerity and authenticity with respect to sustainability practices and claims specifically are also likely to influence how stakeholders perceive and behave towards an organization. It has been shown, for example, that when sustainability-related practices and claims are seen as insincere, they can backfire, resulting in organization-harming perceptions and behavior amongst internal stakeholders. Pro-social incentives perceived to be instrumental hurt worker motivation (Cassar and Meier, 2017), and CSR perceived to be symbolic, rather than substantive, has been shown to negatively affect employees' perceptions of fit within an organization (Donia et al., 2019). Likewise, when higher product prices influence perceptions that the firm invests in social values for calculative or opportunistic motives, corporate sponsorship of events that support social values do not deliver the expected benefits (Fosfuri et al., 2014). Furthermore, instrumental justifications for actions perceived as sincere can be more effective in motivating pro-social behavior than altruistic justifications perceived as insincere (Amengual and Apfelbaum, 2020). Not only are companies penalized when they are perceived as being inauthentic or insincere in their sustainability claims, but as stakeholder demand for sustainable products and practices increases, firms that can effectively convey authenticity in their sustainability efforts may be rewarded with a premium (Alhouti, Johnson and Holloway, 2016, Hahl 2016).

In summary, organizations perceived to have dual sustainability (at both the product and organization levels) are more likely to be perceived as authentic. Within organizations perceived to be sustainable at only one level, product-level-only sustainability is likely to be perceived as more authentic than organizational-level-only sustainability. Given that sustainability practices and claims perceived as insincere or inauthentic are less likely to result in pro-organizational behavior by stakeholders, external stakeholders should respond more favorably to new ventures that they perceive as having both product- and organization-level sustainability compared to those

that they perceive as having only organization level and, to a lesser extent, product-level, sustainability. As such, we predict:

H1a: New ventures perceived as sustainable at both the organization and product levels are likely to be more successful than new ventures perceived as sustainable at only the organization level or the product level.

H1b: Among new ventures perceived as sustainable at only one level (organization or product), those perceived as sustainable at the product level only will be more successful than those perceived as sustainable at the organization level only.

H2: Perceptions of authenticity will mediate the effects of dual sustainability compared to organization-only and (to a lesser extent) product-level sustainability only.

3.0. Rewards-Based Crowdfunding as a Research Setting

It is challenging to empirically examine and compare perceptions of product-level and organization-level sustainability across new ventures when the information available on different ventures is not standardized. We thus leverage a setting which enables us to gather information provided in a relatively standardized format, facilitating comparison: the rewards-based crowdfunding platform Kickstarter. Crowdfunding has emerged as an increasingly prevalent method for raising capital for entrepreneurial organizations (Agarwal et al. 2014, Mollick 2014, Sorenson et al. 2016, Yu et al. 2017), and rewards-based crowdfunding is an important type of crowdfunding platform. It includes such platforms as Kickstarter, Indiegogo, RocketHub, and GoFundMe. On rewards-based crowdfunding platforms, entrepreneurial organizations solicit funding in exchange for “rewards” (the reward is what, if anything, the funder receives in the exchange). Pure donations can be made without receiving anything in exchange, donations can be

made in exchange for input on product development, and donations can be made in exchange for the promise of a future product or service if the funding goal is met, for example. The backer of a rewards-based crowdfunding project can function as something akin to a consumer, an investor, and/or a donor, and can be considered an external stakeholder of the new venture.

3.1 Observational Data and Variable Construction

We use a database of all Kickstarter campaigns between the years 2009 and 2016, obtained from the CrowdBerkeley Database (managed by the Fung Institute at UC Berkeley). Over 4.2 billion dollars has been pledged through Kickstarter since its inception in 2009, and it is the “largest and most prominent crowdfunding platform in the world” (Mollick and Nanda, 2016, p. 1537). This database includes information about the campaign (for example, project category and whether it has a video) and its current status (success, number of backers, amount pledged), but does not contain the full description of the project from its campaign page. To augment this, we scraped the full campaign text from each project page URL and matched this text to the project metadata from the database. The full sample comprises 295,985 projects.

The CrowdBerkeley database includes an additional dataset of Kickstarter rewards that link to the project metadata via a unique ID. There exists a complete set of 1,048,388 rewards for a random subset of 131,338 projects.¹⁰ The rewards data contain the text of the reward, the minimum amount required to secure it, and the number of backers who selected it. Because we apply Coarsened Exact Matching (CEM) to our analysis, for which some projects could not be matched, our sample size for the full set of projects is 35,876. More details about the CEM process can be found in Section 3.5.

¹⁰ We ensured that the sample of projects with rewards was representative of the full available sample by comparing the sets across observables of interest and ensuring no statistically significant differences.

3.2 Identification of Sustainability Dimensions

Identifying the two dimensions of sustainability – organization-level sustainability versus product-level sustainability – is critical to our study but presents a challenge due to the large number of Kickstarter projects. Previous literature (Calic and Mosakowski, 2016) examining CSR orientation in the Kickstarter context was limited to sub-samples of only a few hundred projects in a few project categories, due to reliance on hand-coding. This limits our ability to infer drivers of success due to considerable heterogeneity across crowdfunding projects and categories (Mollick 2014).

To overcome this challenge, we take advantage of recent advances in machine learning to classify a venture’s sustainability orientation. First, a subset of projects was labeled by human coders to be used as training data. Second, the labeled subset was used to train a machine learning model, which was applied to the remainder of the data. The training set consisted of 2068 project texts, which were labeled by a combination of workers on Amazon Mechanical Turk and research assistants from two top US universities. The use of workers on Amazon Mechanical Turk enables many training projects to be completed in a short amount of time. The use of research assistants enables higher quality of the assessments that feed into the training set.¹¹ A label of “Sustainable Product” was assigned if coders read the project text and identified the product/service as benefitting the environment or broader society (1 if yes, 0 if no). A label of “Sustainable Organization” was assigned if coders identified the organization as having a goal or mission of benefitting the environment or the broader society (1 if yes, 0 if no).¹²

¹¹ The results we present in our Results section are robust to inclusion of just the AMT workers’ assessments, as well as to inclusion of both the RAs’ and AMT workers’ assessments as the training set.

¹² Mechanical Turk workers labeled 1456 projects, with each text rated by three workers. A label of “yes” was assigned to each question if more than half of the coders answered in the affirmative for a given project. Research assistants trained by the authors labeled the remaining 612 projects using the same questions. Between three and four raters assessed each project. There was unanimous agreement 72 percent of the time on average, with less than five percent of projects having a 50-50 disagreement.

We then used these labels to train two Gradient Boosting Machine (GBM) models¹³ (Friedman, 2000) – one for *Sustainable Product* and one for *Sustainable Organization* – to label the remaining projects.¹⁴ To prevent the GBM models from overfitting to the training data, we employed cross-validation with three folds.¹⁵ The authors hand-labeled a test set of 250 examples to assess how the final GBM model would perform on unseen data, using our judgments as a standard for comparison. The models correctly classified 91 and 92 percent of the test set, with an AUC of 0.84 and 0.85, respectively.¹⁶ The final models generated a probability estimate that the project should have a positive label for *Sustainable Organization* and *Sustainable Product*.¹⁷ For each model, if the probability was over 50 percent, the project was given a label of one; otherwise, it was given a label of zero. The final models can be visualized and tested using a web application, located at <https://crowdfunding-social-ventures.shinyapps.io/model> (any text can be entered in and the probability the text reflects the two sustainability dimensions is calculated and shown). Because the two models are separate, each project could be labeled as having neither sustainability dimension, as having both, or as having only one or the other. In our full sample of projects, 6.4

¹³ GBM is an ensemble method involving a collection of decision trees. GBMs derive their predictive power from the insight that a large ensemble of weak learners – each learner being a short decision tree – can be accurate in the aggregate. As a boosting model, GBM begins with one decision tree and adds more trees one at a time, adjusting the weights on each tree at every iteration of the training process.

¹⁴ To create the model training data, the project descriptions were transformed into a document-term matrix, with each column representing a unique term and each row containing the number of times the term appeared in each text. Stopwords (common but semantically insignificant words like articles and pronouns) and words that did not appear at least 20 times or in at least 20 project descriptions of the training set were removed, resulting in a vocabulary of 2912 terms.

¹⁵ In this process, the training data is divided into three equal parts, and each part in turn is held out as a validation set for a model trained on the remaining two parts. The final selected model maximizes the average performance over the held-out samples, searching over a grid of different tree depths and tree counts. This process helps to ensure that the model does not become overly complex and therefore overfit to the training set.

¹⁶ AUC, or area under the ROC (Receiver Operating Characteristic) Curve, is a commonly used metric for how well a classifier distinguishes between classes (Fawcett, 2006). An AUC of 1 would indicate a perfect model. Generally, values over 0.7 are considered fair, and values over 0.8 are considered to be good.

¹⁷ The models each contain a weighted collection of 150 decision trees. When a new data example is passed through the model, the text is converted to a 1 x 2912 vector of counts for each term in the model vocabulary. This vector is then applied to the decision trees, and the weighted combination of each tree's vote represents a probability estimate that the project should have a given label (socially responsible organization or product).

percent have both a *Sustainable Organization* and a *Sustainable Product* (Quadrant B), 5.5 percent have only a *Sustainable Organization* (Quadrant C), and 2.2 percent have only a *Sustainable Product* (Quadrant A). 85.9 percent have neither sustainability dimension (Quadrant D).

An example of a campaign that was rated as having both sustainability dimensions is a technology project promoting mobile software to monitor illegal logging and poaching.¹⁸ Both the organization and the product appear to be closely aligned in preventing these illegal practices: in addition to producing the monitoring technology, the organization also partners with indigenous communities to protect their lands. On the other hand, a project that was scored as having a *Sustainable Product* but not a *Sustainable Organization* is a campaign selling a smart add-on for air conditioners designed to make them more efficient.¹⁹ While the product has the socially responsible impact of conserving energy, it is framed only as a cost-saving device (“can reduce your energy bill by a third”) and the organization does not indicate any further commitment to or interest in environmental sustainability. Finally, a project that was rated as having a *Sustainable Organization*, without the sustainable product or service dimension, is a campaign promoting a Cambodian food truck in Montana.²⁰ While the product being sold (Cambodian food) has no clear social responsibility element, the founder expresses a desire to use the business to promote awareness of issues faced by women in Cambodia, and to raise funds for these causes. Text from these example campaigns, along with their model scores, can be found in the Appendix.

3.3. Dependent Variable

¹⁸ <https://www.kickstarter.com/projects/topherwhite/rainforest-connection-phones-turned-to-forest-guar>

¹⁹ <https://www.kickstarter.com/projects/ambi-labs/ambi-climate-the-smart-add-on-for-your-air-conditi>

²⁰ <https://www.kickstarter.com/projects/1318667184/bai-a-cambodian-food-trailer-in-bozeman-montana>

The primary dependent variable for this analysis is whether a project successfully meets its funding goal. The variable, *Successful Project*, is a dichotomous variable (1 for success and 0 for failure) for whether a given Kickstarter project successfully reached its funding goal. Projects that did not meet this condition either failed to reach their goal, were cancelled or suspended, or were removed due to a copyright or content violation. Successful projects constitute 37 percent of the sample.

3.4. Control Variables

To capture the broad category of the project, we create dummies for the categories selected by the project creator within Kickstarter's schema. The categories are art, comics, crafts, dance, design, fashion, film and video, food, games, journalism, music, photography, publishing, technology, and theater. We also follow previous crowdfunding studies (Mollick, 2014) in including a control for the size of the funding goal, *Log(Goal in USD)*, the logged value of the creator's fundraising goal (in US dollars), as this has been shown to impact funding success. Similarly, we control for an indicator variable, *Video*, indicating whether a venture has a video as part of the campaign page, since previous studies have used this as a rough proxy for project quality or sophistication (Mollick, 2014). We also control for the *Description Length*, that is, the length of the project description on the project's main page, in thousands of characters. The mean project description length was 2.5 thousand characters.

3.4.1. Controlling for Reward Types using LDA Topic Modeling

To better control for differences between crowdfunding projects, we also use reward-level data. To deal with the large number of rewards, the reward types were categorized using the following procedure. First, all pure donation rewards that used Kickstarter's default "Make a Pledge without a Reward" option (as opposed to selecting one of the custom rewards offered by

the project creator) were identified and removed from the dataset. Next, the types of all of the remaining rewards were identified using Latent Dirichlet Allocation (LDA) topic modeling on the reward-level data (see a figure displaying the top 10 terms for each topic in the appendix). The topic model can also be viewed and explored using an interactive browser visualization.²¹ Broadly, LDA is an inductive method for discovering the set of subjects discussed in a body of texts (Blei, Ng, and Jordan, 2003). Each individual “topic” is a probability weighting over all the terms in the vocabulary of the corpus. If the model is well fit, observers can generally view the most highly weighted terms within each topic and agree as to what subject the topic pertains. The terms in the topic model provide a rough descriptive overview of the most common types of rewards present in the sample and have the advantage of being “discovered” by the LDA algorithm, rather than externally imposed by the researchers.

In all analyses, the average proportion of the top 20 most prominent reward topics within a given project’s set of rewards are included as controls.

3.5 Coarsened Exact Matching

We observed that projects identified as having the sustainability dimensions of interest were often concentrated in certain project categories, as well as differing in some other important measures. This led us to concerns that projects with various sustainability dimensions differed from projects without them in ways that were meaningfully correlated with success outcomes, which would bias the results. To ensure that projects with the different sustainability dimensions were as similar as possible to projects without, we implemented coarsened exact matching (Iacus et al., 2012). Projects with neither sustainability dimension were regarded as analogous to a control condition,

²¹ See the following URL: https://crowdfunding-social-ventures.github.io/Kickstarter_Rewards_Topics.

with three different treatment conditions: projects with a sustainable organization only, projects with a sustainable product or service only, or projects with both dimensions. Across these four groups, we matched on a vector of covariates that includes the fundraising goal size, whether the project had a video, the image count on the page, the year of the project, and its Kickstarter-classified category. We implemented the matching using CEM weighting. Replications of the analysis without the coarsened exact matching can be found in the appendix.

4. Results: Observational Data

We report results for ordinary least squares (OLS) regressions with HC1 heteroskedasticity-robust standard errors (MacKinnon and White, 1985). We use a linear probability model for predictions of project success.²²

4.1 Having Dual Sustainability Increases the Likelihood of Success

As a baseline, we first looked to establish whether either dimension of sustainability was associated with a greater likelihood of success. The results of this analysis can be viewed in Table 1. Column 1 reports the estimated effect of *Any Sustainability* (that is, either product-level only, organization-level only, or dual sustainability) on project success. Columns 2 and 3 examine the effects of the two sustainability dimensions individually, while Column 4 includes both sustainability dimensions in the same model. Column 5 displays a categorical model which looks at the four distinct quadrants individually (with projects with neither type of sustainability being the omitted type). The full model (Column 5) follows the specification

²² Linear probability models are unbiased and do not suffer from problems with fixed effects and interactions which are well documented (Katz 2001; Wooldridge 2010). Further, given our large sample size and the fact we are not making predictions (we only care about average effects) potential problems with linear models do not apply in this context. Linear models also make interpretation of the regression coefficients more straightforward.

$$Success_i = \beta_0 + \beta_1 Dual_i + \beta_2 OrgOnly_i + \beta_3 ProdOnly_i + \beta_4 X_i + \alpha_i + \varepsilon_i$$

in which *Dual* is an indicator for whether the project has both types of sustainability, *OrgOnly* is an indicator for whether the project has a sustainable organization without the product/service dimension, and *ProdOnly* is an indicator for whether the project has a sustainable product or service without the organizational dimension. The vector of covariates βX_i includes the log of the project goal in USD, the description length in thousands of characters, and an indicator for whether the project has a video, while α_i represents fixed effects for project category and year. As mentioned above, all models use weights derived from coarsened exact matching and robust standard errors.²³

INSERT TABLE 1 ABOUT HERE

We observed that having any type of sustainability was associated with a 2.3 percentage point increase in the likelihood of success (Column 1, $p = 0.001$), and that both a sustainable organization and a sustainable product were associated with greater likelihood of success, with the former being associated with a 2.6 percentage point increase in success (Column 2, $p < 0.001$) and the latter a three-percentage point increase (Column 3, $p < 0.001$). When the two distinct categories of projects were included in the same model, the organization-level dimension and product-level dimension of sustainability were associated with a 1.5 percentage point and 2.1 percentage point increase in success, respectively (Column 4, $p = 0.066$ and $p = 0.034$, respectively).

The results from Columns 1-4 might lead observers to conclude that either type of sustainability could be effective in improving the likelihood of success on their own. In Column 5, however, the categorical model shows that the association between the sustainability dimensions and success was primarily driven by the projects with *Dual Sustainability*. Projects with both types

²³ See the Appendix for results without coarsened exact matching.

of sustainability were 3.9 percentage points more likely to reach their funding goal (Column 5, $p < 0.001$), while projects with only one type of sustainability were not significantly more likely to achieve success than projects with no sustainability. These findings provide support for H1a, which predicted that projects perceived to have dual sustainability were more likely to be successful than new ventures perceived as sustainable at only the organization level or the product level.

INSERT TABLE 2 ABOUT HERE

As shown in Table 2, Wald tests confirm that the coefficient on dual sustainability ($\beta = 0.039$) is significantly different than both the coefficient for organization-only sustainability ($\beta = 0.006$) and the coefficient for product-only sustainability ($\beta = 0.008$). We did not find that projects with product-only sustainability were any more successful than projects with organization-only sustainability ($p = 0.877$ in a Wald test of coefficient equivalence). While the coefficient for product-only sustainability is larger than that for organization-only sustainability in Model 4 ($\beta = 0.021$ versus $\beta = 0.015$), the difference is not statistically significant and appears to be driven by a higher correlation of product-only sustainability with dual sustainability. As a result, we do not find evidence to support H1b, which suggested that projects perceived as sustainable at the product level only would be more successful than those perceived as sustainable at the organization level only.

4.2 Robustness Tests: Results for Different Subgroups

To test the robustness of the results to different samples of the Kickstarter data set we looked at three different characteristics of the Kickstarter campaigns: gender of the creator, whether the campaign was the first time the creator had launched something on Kickstarter, and whether the campaign was one of the Kickstarter categories that would be considered

commercially focused.²⁴ The specification from Column 5 in Table 1 was then repeated with each of these subgroups, and the results are reported in Table 3. Note that these results are without CEM matching, due to the small sample sizes in the subsample groups.

We use the `genderizeR` package in R to classify each project creator's gender. All creators whose gender could not be identified with greater than 95% confidence were dropped from the sample. As can be seen in Table 3, the general directional result of needing dual sustainability holds for both male and female founders, and interestingly we observe that these results are stronger for female creators ($p = 0.041$). This finding is consistent with extant work which has shown that social and environmental claims are generally viewed as more congruent or consistent when made by female founders as opposed to by male founders (Huang and Lee, 2019; Abraham and Burbano, 2021), though extant work has not examined authenticity as a mechanism potentially driving these effects. We reason that perceived consistency across product- and organization-level sustainability claims leads to greater perceptions of authenticity in sustainability claims. It follows that perceptions of consistency of congruence when sustainability claims are made by female founders, combined with consistency across product- and organization-level sustainability claims, should further contribute to perceptions of authenticity in sustainability claims, thus resulting in better outcomes for female founders than for male founders. These findings are therefore in accordance with H2, which suggested that perceptions of authenticity would mediate the positive effects of dual sustainability on success.

We argue that perceptions of authenticity derived from product and organization-level sustainability claims are likely to matter more for new ventures than for established organizations. But this same reasoning, the importance of such perceptions of authenticity might be particularly

²⁴ Commercial categories include Design, Fashion, Food, Games, and Technology.

pronounced for the very newest ventures: those led by first-time creators. We thus examined the subset of Kickstarter campaigns that were led by first-time creators.²⁵ As can be seen in Table 3, our results are robust to restricting the sample in this way. The coefficient for Dual Sustainability is directionally larger when only looking at first-time creators, though it is not statistically different from the unrestricted sample.

Lastly, because of our interest in examining perceptions of sustainability as a product-level characteristic, it is important that our results remain robust to exclusion of Kickstarter projects that do not have a product in the traditional sense. We thus checked to see if the results hold when only considering Kickstarter categories that are most likely to have a commercial product: Design, Fashion, Food, Games, and Technology. Notably, the coefficient for Dual Sustainability is larger when restricting our sample to commercial categories, though it is not statistically different from the unrestricted sample.

INSERT TABLE 3 ABOUT HERE

5. Design of Complementary Experiment

To test our theoretical argument articulated in H2 – that perceived authenticity is the mechanism underlying the advantage associated with dual sustainability – we designed a complementary vignette experiment in which users on Amazon Mechanical Turk rated hypothetical Kickstarter projects. We pre-registered the experimental design with the Open Science Foundation. Participants were randomly assigned to one of four conditions (a 2x2 design): no sustainability, organization-level sustainability only, product-level sustainability only, or dual sustainability. The core manipulation text took the following form:

²⁵ Almost 90% of all projects are led by first-time creators.

Two co-founders recently launched a crowdfunding campaign on Kickstarter to jumpstart their new venture. They are developing a new robot vacuum for sale. Imagine that you have \$100 to spend on Kickstarter this year and are deciding whether or not to support this campaign.

***About the organization:** [Not sustainable organization: The organization is committed to being successful, as demonstrated by the profitability of its other products.] / [Sustainable organization: The organization is committed to helping the environment, as demonstrated by its donation of a portion of its profits to environmental and other charities.]²⁶*

***About the product:** [Not sustainable product: The robot vacuum 2.0 not only cleans extremely well, but also can be managed by the user's smartphone and is easy to store.] / [Sustainable product: The robot vacuum 2.0 not only cleans extremely well, but also will directly benefit the environment by filtering carbon dioxide and reducing users' energy usage.]*

Please think about and visualize this campaign.

To measure the level of support for a project, participants were then asked to choose a reward option amount to allocate to the project (\$0, \$5, \$10, \$25, \$50, \$75, or \$100). They were also asked to indicate their agreement with the statement “I would be likely to support this project” on a seven-point Likert scale. To determine how perceptions of authenticity influenced project support, we asked participants to rate how authentic they felt the project creators were in general (“I find the project creators authentic”), as well as two questions to identify two main components of authenticity, on a seven-point Likert scale. Lehman et al. (2019) note that authenticity research includes three fundamental and distinct perspectives: consistency between internal values and

²⁶ A prior version of this experiment was implemented using more heavy-handed language in the not sustainable organization conditions. Specifically: “*The organization is committed to being successful, as demonstrated by the profitability of its other products and the fact that the organization does not donate any of its profits to environmental or other charities.*” Our results in the first version of this experiment were overall consistent with (and generally stronger than) those which we present here based on a less heavy-handed manipulation.

external actions (sincerity), conformity to a claimed or assigned social category (which can include mission), and connection to a person, place or time. The first two perspectives are most relevant to perceptions of authenticity of an organization, and so we capture these two perspectives by additionally asking participants to rate their agreement with the respective statements: “I find the project creators sincere” and “I find the project creators true to their mission.”

To control for perceptions of others’ support for the project (and therefore the perceived likelihood that rewards will be fulfilled) we collected respondents’ agreement with the statement “I believe this organization is likely to succeed”. As additional controls, we collected data on participants’ age, gender, income, and experience using Kickstarter in the past.

6. Results: Experimental Data

6.1 Main Results

After dropping participants who failed attention checks, 927 Mechanical Turk participants remained in the experimental sample. Table 4 shows summary statistics of participant covariates across the four different experimental conditions. Participants were roughly 39 years of age on average, 56 percent male, with an average income of 58,000 USD. Roughly 47 percent of the sample reported using Kickstarter in the past.

INSERT TABLE 4 ABOUT HERE

P-values from t-tests comparing each condition sample to the neutral *Neither* condition are displayed in brackets. Only one difference between groups reached significance at the $p = 0.05$ level – those in the *Organization Only* condition were more likely to have used Kickstarter in the past – but all results are robust to including the covariates as controls.

At a baseline level, we predicted that participants in the *Dual Sustainability* condition would report being willing to allocate more money to the hypothetical Kickstarter project, relative to those in the *Organization Only* or, to a lesser extent, *Product Only* conditions. As shown in Table 5, those in the *Dual Sustainability* condition reported that they would donate \$41.01 on average, while those in the *Product Only* and *Organization Only* conditions reported hypothetical average donations of \$38.64 and \$38.27, respectively. Those in the *Neither* condition reported the lowest level of average donation, at \$33.20.

The remaining rows in Table 5 show average values reported for each condition on the Likert scale measures of likelihood of support, perceived likelihood of success, and the three measures of the perceived authenticity of the creator: *Authentic*, *Sincere*, and *True to Mission*. Participants were more likely to report a willingness to support projects from all of the three sustainability conditions, relative to the *Neither* condition, although the *Dual* condition commanded the highest hypothetical donations. In each of the three authenticity measures, only the *Dual* condition was significantly different from the *Neither* condition, a difference of approximately half a point on the 1-7 scale ($p < 0.001$ in each case). There were no significant differences between the conditions in the perceived likelihood of project success, which helps to rule out the possibility that this potentially endogenous mechanism could be driving our results.

INSERT TABLE 5 ABOUT HERE

Table 6 displays results from a mediation analysis using the average donation amount as the dependent variable. Each column displays pairwise comparisons of the four experimental conditions; for example, the first column examines whether the authenticity measures mediated the positive effect of the *Dual Sustainability* condition on the *Donation Amount* measure, relative to the *Organization Only* condition. The bottom half of the table displays the mediation analyses

controlling for perceived likelihood of project success (“I believe this project is likely to succeed”), to account for participants’ beliefs about others’ responses to the project and its subsequent likely success.

INSERT TABLE 6 ABOUT HERE

When comparing the *Dual Sustainability* condition to the other three experimental conditions, perceptions of the project creators as *Authentic*, *Sincere*, and *True to Mission* fully mediated the advantage of the *Dual* project in the *Amount Donated* measure. This full mediation was observed in each of the individual authenticity measures, as well as a combined measure of the authenticity constructs, *Authenticity Combined* (the sum of *Authentic*, *Sincere* and *True to Mission*). Successful mediation models were also observed in models controlling for the perceived likelihood of project success (seen in the bottom panel of Table 6), although the indirect effect mediated through the authenticity measures was smaller in these models. These results support our proposed mechanism: namely, projects with dual sustainability have an edge over projects with organization-level sustainability alone or product-level sustainability alone because they are perceived as more authentic, sincere, and true to their mission.

The final two columns in Table 6 display mediation models comparing the *Organization Only* sustainability condition and the *Product Only* sustainability condition to the *Neither* condition, respectively. While each of the two conditions with one type of sustainability both had a higher average donation than the *Neither* condition, this positive effect was not mediated through the perception of authenticity, sincerity, or being true to mission.

7. Conclusion

Using mixed methods, this paper provides evidence that, when it comes to external stakeholders' inferences from and reactions to new ventures' sustainability characteristics and claims, perceived consistency across sustainability-related characteristics and claims is key. Specifically, we provide evidence that it is critical that new ventures are perceived to be sustainability at *both* the organization and product levels to reap benefits. We furthermore provide evidence of the mechanism behind this: external stakeholders perceive new ventures with sustainable products but which do not appear to be committed to sustainability at the organization level, and vice versa, as less authentic and sincere than new ventures perceived to be engaging in sustainability at both the product and organizations levels.

While we focused on new ventures, future work could examine whether similar effects and mechanisms apply to established incumbents. As we noted in our theory development, a similar line of argument is likely to apply to established companies, though the relative importance of perceptions of authenticity in new ventures and the relative dearth of information on new ventures suggests that the effect sizes we observe in this study are arguably likely to be upper bounds for equivalent effects in established, large firms. An understanding of how different dimensions of sustainability might interact in established firms juxtaposed with our findings would furthermore be informative for new ventures, in helping to identify ways that new ventures might be able to gain advantage in pursuing sustainability as part of their differentiation strategy. A new firm making sustainable claims may be perceived as more authentic than an established company making such claims if it had not made such claims before. Similarly, new small ventures with a focused set of sustainable products could have an advantage in being perceived as consistently committed to sustainability through its products than larger, more diversified firms. To this point, future work could examine how the findings of this paper extend to companies with multiple

products. It would also be interesting to examine whether stakeholder perceptions of authenticity are most salient at the product, brand or company levels.

We show that consistency between organization-level and product-level sustainability characteristics and claims matter for external stakeholder perceptions and behavior. Future work could examine whether consistency across organization- and product-level sustainability also influences internal stakeholder perceptions and behavior. Future work could furthermore examine whether consistency and congruence in the sustainability *area of focus* across the product and organization-levels similarly influences stakeholder perceptions of a firm. For example, by a similar congruence argument, if a company's product is sustainable from an energy perspective, it might benefit more from an organization-level sustainability initiative focused on energy than one focused on something unrelated like childhood obesity.

Future work could also examine if being openly instrumental about pursuing a business opportunity and not caring about sustainability is seen as authentic. It is possible that firms with a sustainable product but purely financial motives would be perceived as authentic as long as they are upfront about their motivations. Further, given the varied opinions stakeholders hold with respect to the appropriateness of corporate social responsibility and different sustainability goals, this could be a way for firms to differentiate themselves from the competition.

This paper clearly shows that not all sustainability practices are equal, and that interactions between sustainability practices and claims are critical in understanding their impact on firm performance. In particular, we provide evidence that it is critical that new ventures consider external stakeholders' perceptions of authenticity as driven by congruence across organization-level and product-level sustainability efforts. This paper thus helps inform a strategic perspective of sustainability that includes prescriptions of how to engage in sustainability for firm benefit.

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ORGANIZATION- OR PRODUCER-LEVEL SUSTAINABILITY

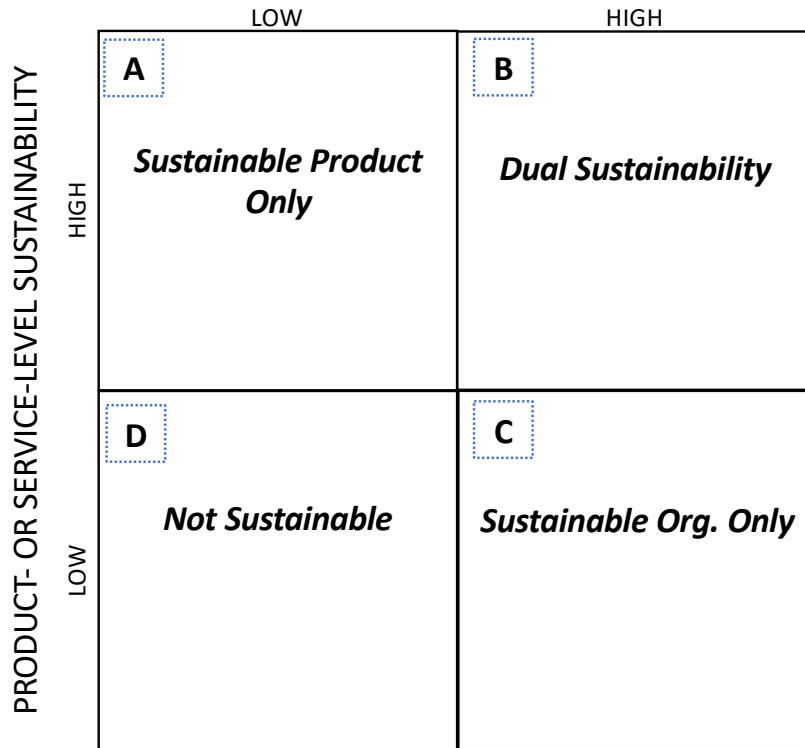


Figure 1: Sustainability Dimensions

1 Observational Data

1.1 CEM Matched Tables

Table 1: Sustainability Dimensions and Success

	<i>Dependent variable:</i>				
	Successful Project				
	(1)	(2)	(3)	(4)	(5)
Any Sustainability	0.023** (0.007)				
Sustainable Org		0.026*** (0.007)		0.015* (0.008)	
Sustainable Product/Service			0.030*** (0.008)	0.021** (0.010)	
Dual Sustainability					0.039*** (0.010)
Sust. Org Only					0.006 (0.008)
Sust. Product/Service Only					0.008 (0.015)
Log(Goal in USD)	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Description Length	Yes	Yes	Yes	Yes	Yes
Video	Yes	Yes	Yes	Yes	Yes
Category	Yes	Yes	Yes	Yes	Yes
Reward Topics	Yes	Yes	Yes	Yes	Yes
Observations	35,876	35,876	35,876	35,876	35,876

Robust SEs in parentheses. *p<0.1; **p<0.05; ***p<0.01

Table 2: Wald Tests for Coefficient Equality – Model 5

Test	
<i>Org Only = Product Only</i>	<i>p = 0.877</i>
<i>Org Only = Dual</i>	<i>p = 0.003</i>
<i>Product Only = Dual</i>	<i>p = 0.074</i>

Table 3: Summary of Effects Within Creator Subgroups

Subgroup	<i>(Coefficients from Models Analogous to Model 5 of Table 1)</i>		
	Dual Sustainability	Sust. Org Only	Sust. Product/Service Only
All Creators	0.030*** (0.008)	0.004 (0.008)	0.014 (0.011)
Male Creators	0.016* (0.010)	-0.001 (0.010)	0.006 (0.014)
Female Creators	0.063*** (0.016)	0.015 (0.016)	0.036 (0.023)
First-Time Creators	0.040*** (0.008)	0.014* (0.008)	0.015 (0.011)
Commercial Categories	0.042*** (0.012)	-0.003 (0.013)	-0.009 (0.016)
Male First-Time Creators	0.022** (0.010)	0.008 (0.010)	0.007 (0.015)
Female First-Time Creators	0.065*** (0.016)	0.020 (0.017)	0.032 (0.025)
Male Commercial Category Creators	0.032** (0.015)	-0.013 (0.016)	-0.025 (0.021)
Female Commercial Category Creators	0.081** (0.028)	0.041 (0.032)	0.007 (0.045)
First-Time Commercial Category Creators	0.048*** (0.014)	0.013 (0.015)	-0.014 (0.020)
Male First-Time Commercial Category Creators	0.034*** (0.016)	0.003 (0.017)	-0.022 (0.022)
Female First-Time Commercial Category Creators	0.082*** (0.029)	0.045 (0.032)	0.022 (0.047)

Note: Commercial Categories include Design, Fashion, Food, Games, and Technology. All results are without CEM Matching. *p<0.1; **p<0.05; ***p<0.01

2 Experimental Data

Table 4: Experiment Sample Balance

Variable	Neither	Org Only	Product Only	Dual Sustainability
Age	39.0 (11.8)	38.5 (12.1) [0.69]	39.0 (12.3) [0.98]	39.8 (12.6) [0.48]
Female	0.41	0.43 [0.60]	0.47 [0.14]	0.44 [0.43]
Income (\$K)	57.6 (38.9)	57.2 (41.9) [0.90]	57.6 (39.9) [0.99]	59.2 (40.4) [0.67]
Used Kickstarter	0.41	0.52 [0.01]	0.46 [0.28]	0.48 [0.11]

Note: Means displayed with SDs in parentheses, p-values from t-test for difference from *Neither* condition in brackets.

Table 5: Experiment Outcomes

Variable	Neither	Org Only	Product Only	Dual Sustainability
Donation Amount (\$)	33.20 (34.7)	38.27 (33.01) [0.12]	38.64 (36.52) [0.11]	41.01 (36.82) [0.02]
Likely to Support (1-7)	4.06 (1.72)	4.45 (1.61) [0.01]	4.57 (1.66) [0.001]	4.56 (1.62) [0.001]
Authentic (1-7)	4.86 (1.33)	5.04 (1.31) [0.15]	4.96 (1.38) [0.42]	5.34 (1.19) [0.000]
Sincere (1-7)	4.87 (1.28)	4.94 (1.31) [0.54]	5.00 (1.36) [0.30]	5.41 (1.08) [0.000]
True to Mission (1-7)	4.99 (1.26)	4.91 (1.38) [0.51]	5.05 (1.39) [0.64]	5.49 (1.06) [0.000]
Likely to Succeed (1-7)	4.77 (1.24)	4.85 (1.31) [0.51]	4.95 (1.36) [0.14]	4.82 (1.44) [0.68]

Note: Means displayed with SDs in parentheses, p-values in brackets.

Table 6: Mediation Analysis Summary

IV Comparison Group	DV: Donation Amount (\$)				
	Dual Org Only	Dual Product/Service Only	Dual Neither	Org Only Neither	Product/Service Only Neither
N	458	462	446	428	432
Mediating Variable:					
Authentic	2.66*** (0.08)	3.16*** (-0.80)	5.02*** (2.79)	1.93* (3.15)	1.58 (3.86)
Sincere	3.86*** (-1.13)	3.49*** (-1.12)	5.85*** (1.96)	0.97 (4.11)	1.74 (3.70)
True to Mission	5.13*** (-2.40)	4.13*** (-1.76)	5.24*** (2.57)	-0.75 (5.83*)	0.75 (4.70)
Authenticity Combined	4.59*** (-1.85)	4.19***(-1.82)	6.38***(1.43)	0.78 (4.29)	1.58 (3.86)
<i>(Controlling for Perceived Likelihood of Success)</i>					
Authentic	0.78* (1.95)	1.21* (2.49)	2.40*** (4.51)	0.93 (3.31)	0.28 (3.08)
Sincere	0.97 (1.75)	1.37** (2.33)	2.86*** (4.05)	0.29 (3.94)	0.37 (2.99)
True to Mission	1.73** (0.99)	1.93** (1.77)	2.37*** (4.54)	-0.58 (4.81)	-0.21 (3.57)
Authenticity Combined	1.47** (1.26)	1.88** (1.81)	3.25*** (3.66)	0.18 (4.06)	0.17 (3.19)

Note: Coefficients of indirect effect of IV on DV through MV are reported outside of parentheses. Direct effects are reported inside the parentheses. Bolded results indicate successful mediation models. Authenticity Combined is the sum of Authentic, Sincere and True to Mission. *p<0.1; **p<0.05; ***p<0.01

3 Appendix and Robustness

3.1 Observational Data

3.1.1 Without CEM Matching

Table 7: Sustainability Dimensions and Success

	<i>Dependent variable:</i>				
	Successful Project				
	(1)	(2)	(3)	(4)	(5)
Any Sustainability	0.017** (0.006)				
Sustainable Org		0.016** (0.006)		0.007 (0.007)	
Sustainable Product/Service			0.025** (0.007)	0.021** (0.008)	
Dual Sustainability					0.030*** (0.008)
Org Only					0.004 (0.008)
Product/Service Only					0.014 (0.012)
Log(Goal in USD)	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Description Length	Yes	Yes	Yes	Yes	Yes
Video	Yes	Yes	Yes	Yes	Yes
Category	Yes	Yes	Yes	Yes	Yes
Reward Topics	Yes	Yes	Yes	Yes	Yes
Sample	All	All	All	All	All
Observations	41,918	41,918	41,918	41,918	41,918

Robust SEs in parentheses. *p<0.1; **p<0.05; ***p<0.01

Table 8: Wald Tests for Coefficient Equality – Model 5

Test	
<i>Org Only = Product Only</i>	$p = 0.462$
<i>Org Only = Dual</i>	$p = 0.016$
<i>Product Only = Dual</i>	$p = 0.241$

3.2 Reward Topic Model

1	2	3	4	5	6	7	8	9	10	11	12	13	14
can	included	film	shipping	kit	coffee	character	private	year	album	show	game	black	book
want	day	credit	add	includes	bottle	design	home	business	cd	party	access	white	copy
like	travel	producer	us	usb	oz	work	concert	company	release	tickets	app	color	signed
just	dinner	cast	please	power	mug	story	house	month	new	vip	backer	choice	pdf
make	tour	movie	international	board	recipe	create	within	subscription	download	program	free	red	copies
know	us	crew	free	system	hot	can	come	member	copy	invitation	beta	gold	books
us	take	director	included	light	tea	part	show	months	autographed	ticket	version	blue	author
don	experience	executive	additional	complete	food	characters	live	sponsor	ep	event	get	silver	cover
let	visit	screening	usa	fully	chocolate	creative	friends	membership	physical	launch	team	green	ebook
give	join	script	outside	pro	farm	use	area	club	digital	opening	exclusive	leather	hardcover
15	16	17	18	19	20	21	22	23	24	25	26	27	28
video	print	shirt	level	signed	get	first	name	new	love	made	exclusive	early	edition
song	art	size	stretch	cover	well	available	website	world	gift	custom	updates	bird	signed
music	original	bag	goals	issue	awesome	time	listed	city	family	hand	project	special	limited
skype	prints	logo	includes	comic	now	delivered	list	york	give	small	access	price	poster
call	artist	tee	pdf	copy	cool	may	section	man	great	designed	behind	retail	shirt
live	signed	tote	hero	graphic	else	delivery	supporter	beautiful	friends	kind	receive	campaign	kickstarter
phone	artwork	hat	zombie	sketch	youll	upon	wall	award	life	unique	scenes	kickstarter	numbered
session	paper	pair	world	original	just	order	page	road	good	handmade	video	value	print
studio	painting	style	kickstarter	print	right	run	added	history	friend	piece	backer	get	printed
recording	printed	sizes	master	artist	anyone	shipped	appear	summer	can	large	production	color	exclusive
29	30	31	32	33	34	35	36	37	38	39	40		
support	photo	sticker	set	special	digital	receive	thank	choice	plus	plus	thank		
project	see	shirt	card	dvd	copy	pledge	personal	free	rewards	get	page		
every	com	na	full	thanks	download	nyou	note	pack	reward	package	website		
us	picture	nplus	cards	film	high	well	personalized	three	level	everything	facebook		
help	series	logo	box	credits	physical	addition	postcard	four	previous	fan	shout		
thank	receive	nand	deck	copy	pdf	backers	email	five	everything	bundle	gratitude		
much	episode	button	complete	poster	quality	along	written	choose	includes	including	media		
donation	send	bumper	includes	signed	full	amount	card	stickers	tier	extra	mention		
contribution	photos	pin	decks	finished	soundtrack	donation	letter	copies	receive	shirt	big		
make	project	l	printed	autographed	wallpaper	donate	hand	get	well	full	twitter		

Figure 2: Top 10 Terms from LDA Model of Rewards Text

3.3 Example Projects and Model Scores

Enter the description for a crowdfunding project here (at least two paragraphs for best performance).

Rainforest Connection transforms recycled smartphones into autonomous, solar-powered listening devices that can pinpoint signs of destructive activity at great distance.

It's the world's first scalable, real-time logging detection system, pinpointing deforestation activity as it occurs.

Taking it one step further:
Rainforest Connection Mobile App
With the Rainforest Connection mobile app, any interested person from around the world can listen-in on the rainforest anytime, from anywhere.

In late 2014, we will release web & mobile apps to let our backers stream

Submit

Does this project come from a **socially responsible organization?**
Yes (79% confidence)

Does this project offer a **socially responsible product or service?**
Yes (83% confidence)

Figure 3: Example of Project with Dual Sustainability

Enter the description for a crowdfunding project here (at least two paragraphs for best performance).

Ambi Climate is a small, sleek internet of things device that makes your existing infrared remote-controlled air conditioner smart.

It allows you to sync your AC with your smartphone, giving you complete access to monitor and control your air conditioner wherever you are.

Ambi Climate uses predictive climate control by monitoring the temperature and environment both inside and outside maximizing energy use. In fact, thermal comfort isn't about temperature alone. That is why Ambi Climate takes into a consideration sunlight, temperature, humidity and other elements to maintain a more comfortable, energy efficient interior

Submit

Does this project come from a **socially responsible organization?**
No (82% confidence)

Does this project offer a **socially responsible product or service?**
Yes (90% confidence)

Figure 4: Example of Project with Product-Only Sustainability

Enter the description for a crowdfunding project here (at least two paragraphs for best performance).

If you want to support this project but don't live in Montana, or know someone who does, pledge \$25 and I'll send you an authentic Cambodian krama scarf. These kramas are hand loomed and great for spring or fall.

I feel very fortunate to live in the United States, and I want to form a non-profit organization to help women and children in Cambodia. I plan to use the Bai food trailer to raise awareness of issues faced by women in home country and to raise funds for projects there. By supporting this Kickstarter project, you will not just be helping to bring Cambodian food to Montana, but also helping those in need in Cambodia.

Does this project come from a **socially responsible organization?**
Yes (79% confidence)

Does this project offer a **socially responsible product or service?**
No (72% confidence)

Figure 5: Example of Project with Organization-Only Sustainability